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AMONG THE SOURCES OF THE SAN JOAQUIN.

BY THEODORE S. SOLOMONS.

[The following paper is an account of an exploring expedition among the head waters of the northern branches of the San Joaquin River, which was taken by the writer during the summer of 1892. It is substantially the same paper as that read before the Sierra Club at its meeting of April 29, 1893, in connection with a lantern-slide exhibition of photographs taken during the trip. All explanations of, and references to the views, have, of course, been eliminated, and the paper put into a more narrative form.]*

On the 17th of May the writer, accompanied by Mr. Sidney S. Peixotto, started from San Francisco for a five months' sojourn in the High Sierra. Previous to reaching the Yosemite Valley we traveled in a wagon drawn by mules, which were also accustomed to the riding and pack-saddle. After six weeks' travel among the summit regions of the northern and middle Sierra counties, we reached the Yosemite Valley toward the end of June. Here we were joined some weeks later by Mr. J. N. LeConte, and our party of three made a ten days' trip to Mt. Ritter, which we ascended, and then pioneered our way down Rush Creek to Mono Lake, returning to the valley by way of

*For a general sketch of the topography of the region traversed, together with the route pursued, reference may be had to the map compiled by Mr. J. N. LeConte, and distributed to members of the Sierra Club in 1892.

Bloody Cañon and the Yosemite Trail. Mr. LeConte then left the valley, and on August 9th Mr. Peixotto and myself packed a carefully selected outfit and three weeks' provisions on our two mules (named respectively Shasta and Whitney, in honor of the two dominant peaks of the range), and started upon a trip to the region south of Mt. Ritter, which appeared, from the splendid view of it we had obtained from the summit of that peak, to be an exceptionally wild and rugged country, with many indications of remarkable scenic features.

As far south as Ritter the crest of the range was explored some ten years ago by the United States Geological Survey during its reconnaissance of the Mono Lake Basin. South of Ritter no systematic survey has ever been made, and, although the region includes the southeastern portion of the Yosemite National Park, and gives birth to one of the two principal rivers of California, the greater portion of its surface is *terra incognita*.

Unfortunately, when we reached the Tuolumne Meadows, it became necessary for Mr. Peixotto to return, and, rather than abandon the proposed expedition, I decided to continue on alone—a most foolhardy undertaking, I afterwards realized; but one which happily resulted in no accident. I selected the more experienced of the two mules, and packed upon his back as much of the provisions as he could carry, in addition to the large camera brought along, and the remainder of the outfit. For the benefit of any club members who may possibly profit by my experience, I might state that I did not use the ordinary pack-saddle and bags. My saddle was an old army saddle, small, but very strong, and with a sort of horn, or peak, at each end. Two boxes, $2\frac{1}{2} \times 1\frac{1}{2} \times 1$; one containing provisions, the other camera and outfit, were hung on each side of the mule by straps of suitable length, fastened to handles on the ends of the boxes, and hung upon the saddle peaks. Of course, the

breast strap and breechings were also used to keep the boxes in place while ascending and descending. The box method obviates the perpetual nuisance of packing and unpacking. The boxes opened on the side by hinged lids, which swung down, disclosing compartments. While on the march it was simply necessary to halt, unlatch the lid and take out the camera or other article, replace it, close the lid and proceed. The boxes also served as a perfect protection to the camera plates and other comparatively breakable articles against bumping into trees and rocks.

The trip to the summit of Lyell and the photographing of its glaciers need not be described, as the route to the summit and the topography of the adjacent region is well known.

As a warning to those who may attempt the ascent of the mountain late in the season, it might, however, be pertinent to refer to the changes which take place on the surface of the glacier toward the end of August and the beginning of September (according to the amount of snow which has fallen during the previous winter). On the 16th of August, when the writer crossed the glacier, the portion adjacent to the terminal moraine was extensively hollowed out, which was evidenced by the sound of rushing water under the surface, by its varying degrees of opacity, the profusion of little green pools, and also by holes in the crust, which I did not yearn to explore. Farther up, about midway between the moraine and the cliffs, I encountered several little crevasses stretching directly across the path to the summit. Not anticipating anything of the kind, I had been plodding up the sloping glacier, my eyes fixed upon the distant cliffs, when, happening providentially to glance downward I saw, with horror, that I was upon the very brink of a crevasse. A few feet further and my brief career in the high Sierra would have abruptly terminated. The crack extended some 200 yards on either side, with an average width of 3 or 4

feet. I leaned over the edge, but could not see the bottom, nor upon dropping in a stone could I catch the sound of its striking; but it is not unlikely that it fell upon snow. The opposite side of the crevasse, the lip of which was somewhat overhanging, was serrated with icicles of most fantastic form, some resembling blades, others appearing as spears of all sizes, up to great pointed poles of ice, hanging 30 and 40 feet into the depths. Tints of green and blue shaded the interior of the crevasse, and portions of the walls were stained crimson, due to the presence of protoctus, as we are told by Whitney and Russell. Beautiful beyond description are these crevasses, but the cold shiver which invariably gambols down the spinal column of the beholder is not always to be regarded as a purely æsthetic sensation.

The highest point of the glacier is a little *névé tongue*, which the traveler usually crosses before taking to the cliff. This tongue, though rather steep, is usually firm and safe. When I reached it, however, the snow was rotten, and seemed undermined by the drainage. Before I had mounted far the surrounding snow vibrated like jelly. After floundering about a few moments I discreetly descended and took to the cliffs, a few hundred feet eastward. It will be seen from the foregoing that the ascent of the mountain, at this season of the year, is fraught with no little peril, especially to the unwary.

The following day, August 17th, was devoted to photographing the glaciers and terminal lake, and early on August 18th I crossed the Tuolumne from the main camp at the upper end of the Meadow, and made my way over substantially the same route as that pursued by our party three weeks before.

Upon the eastern side of the stream which dashes down the mile-long gorge, from the melting point of the lower glacier, and flows out upon the Tuolumne Meadow, a rude

trail which is, in fact, scarcely more than an interrupted series of blazings, may be followed up the first and more difficult two-thirds of the length of the cañon. The ascent of the eastern wall presents no difficulty to men, but is a rather ticklish matter for animals. On our first expedition we followed up the cañon to quite an extensive flat, situated nearly at its head. On the present one, however, I turned at the first piece of meadow, which is about half way up the cañon. A terminal moraine of the old, retreating glacier, distinguished as usual by a kind of embankment of boulders and debris, had dammed up a lake, which, gradually filling, has at length become a little meadow, level as a floor, and furnishing a delightful camping ground. Among other smaller trees and bushes, four large trees are conspicuously seen to lie in a straight line up the western side of the cañon. This line of trees I had noticed from the slopes of Lyell the previous day, as marking the location of what seemed the most advantageous place of ascent of the entire mile of cañon side. I found it indeed quite easy on Whitney, although, as a result of my own carelessness, he fell twice.

Once out of the cañon, a treeless, sloping plateau, walled in on the east by some very old and very interesting cirques, must be traversed before the divide is gained. The lowest point of the ridge is easily reached, and here a very pretty little lake lies almost on the divide. A splendid view is obtained of Lyell and McClure, and, in fact, of the entire basin of the Tuolumne. To the south a lofty and snow-covered line of peaks extends from Mt. Lyell to Mt. Ritter and its twin, Banner Peak, where the ridge abruptly ends. [Pl. VII.] Between the observer and Mt. Ritter lies the upper basin of Rush Creek, which has been most fantastically eroded from a continuous mass of greatly metamorphosed sedimentary rock. The basin derives its waters from the snow and ice of this lofty ridge.

Here, on the very crest of the mountain, on the true divide between the eastern and the western slope, there are evidences of the former presence of moving ice. For a distance of some hundreds of feet the glaciation is continuous, the divide having been planed down until level as a floor. Slabs of rock displaced by subsequent disturbances, together with glacial boulders and other residual debris, are profusely scattered over the surface. This little pass, then, is one of quite a number of low places on the main crest which appear to have been completely covered by ice during the glacial period.

The journey to the base of Mt. Ritter from the divide is comparatively easy, with the exception of the first descent to the upper plateau of the basin. A steep and ugly bluff, fractured and roughened by storm and torrent, must be descended, and very cautiously, too. It would be next to impossible to take an ordinary horse down this hill, and it is very trying on a jack or mule. It is well to keep on the western side of the stream, and sufficiently near it to take advantage of the little patches of soil which the water has washed into the numerous holes.

The tree line is reached at the lower margin of the upper terrace of the basin; and here the whole region is one great camping ground. The structure of the basin is, I believe, quite unique. The terrace-like formation is noticeable, not only in the way that the basin is divided into several well marked plateaus, or benches, but each of these, and even the main lower basin itself—their confluent, so to speak—is divided into little grassy terraces, separated by low, rounded masses, and running into each other in a most bewildering fashion. The easiest route from the base of the steep bluff described, is to keep curving in toward the slopes, maintaining the level as much as possible, and avoiding the steeper descents.

On the summit of the hill the main crest is again reached.



THE CREST, FROM LYELL, TO RITTER.

(Looking across the basin of Rush Creek, from an elevation of 11,500 feet.)
From a photograph by Theodore S. Solomon. 1892.

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Here the traveler is on the divide between Rush Creek and the head waters of the main San Joaquin River, which heads in a shallow, island-dotted lake, lying at the northeastern base of the Ritter group. The view of these majestic peaks, mirrored in the little lake on the very summit of the divide, is something so awe-inspiring, so indescribably impressive, that, however extensive may have been his travels in the Sierra, the spell-bound beholder will murmur "At last!" when the full scene bursts upon him.

The desolation of the landscape is but little softened by the effect of the few trees in the foreground. That desolation of rock, shattered and torn, carved and sculptured, with its cold, white mantle of glacier and snow field, is relieved only by the very majesty of the mountain peaks themselves, with their forcible suggestion of life and personality. The sweeping, upward curve of their slopes, the sharp outline of the summits endow them with a dual sovereignty. Mt. Ritter and Banner Peak stand the king and queen of the Sierra, dominating a crest that stretches from Shasta on the north to Mt. Goddard in Fresno County, on the south.

The divide here is so low and flat that a wagon road might easily be built over it. The Ritter group is not situated upon the main crest, but is the termination of the lofty ridge which extends southward from Mt. Lyell. At a point on this ridge, about half a mile north of Ritter, the divide shoots off in a nearly easterly direction for about 3 miles, then turns abruptly southeast, thus enclosing the island-dotted lake and its outlet stream.

Following up the rivulet which flows down the northern slope of the mountain and empties into the lake, I camped at the highest patch of grass, where a clump of stunted tamarack bushes provided shelter and fuel. [Pl. VIII.] Next morning I slung the camera and four plates on my back and started up the mountain. The route to the summit is a go-as-you-

please one, but very trying, at best. On our first expedition we kept well up on the slopes of Banner Peak, crossed the main glacier slantingly and tackled the precipitous side of Ritter, instead of going to the very head of the glacier, from which point the final ascent is most easily made, as we afterward discovered. We soon found ourselves in the same predicament as that alluded to by John Muir in a description of his ascent of the mountain twenty years ago. We reached a point on the almost vertical cliff from which it seemed equally impossible either to continue the ascent or to descend. We did not experience that sudden inspirational agility which came to Mr. Muir just in the nick of time; but by great care and good management—as we prided ourselves—succeeded in accomplishing the ascent. Once on the narrow backbone of the peak the summit was only a matter of climbing, which, at times, seemed like navigating a picket fence.

The view from Ritter is not greatly superior to that obtained from the summit of Mt. Lyell, but it is different. The southern Sierra is nearer. The Fresno mountains are spread out as a vast panorama. Ten or fifteen miles to the south is the great trough of the San Joaquin, its irregularities of topography nearly indiscernible on account of the distance; and the country for miles seems a great, rolling valley. The junction of the main and south forks with the "balloon dome" of Professor Brewer, seem quite near. Farther to the southwest, through the great depression, the course of the river may be traced until lost in the purple obscurity of the foothills; and on a clear day the haze of the San Joaquin plain is a long, yellow spot on the western horizon. Down the crest of the range, stretching southeast in zigzag lines, many peaks may be identified with a little patience and careful sighting. We believed we had located the Palisades and several even more southerly points.

On the present expedition I climbed along the bed

of the stream which feeds the lake, jumping upon large, angular slate boulders, surmounted the final barrier of rocks which dams up the lakelet into which the glacier flows, and on the shore of the lake took my first photograph. On our former visit this lakelet was partially frozen. Small icebergs floated on its bosom, and the ice and snow which nearly covered it were a beautiful cold green. The lake is drained on the west by the streams which form the north fork of the San Joaquin. In climbing around the northern and western base of the peak quite a chain of similar lakelets are encountered, located on a kind of circular shelf or terrace. Above towers Ritter's dark and frowning cliff, while below the waters of the lakelets plunged down the steep mountain-side, uniting their several streams in the gorge below. In several cases these streams, before leaping over, had burrowed through the snow which still filled their channels, forming tunnels through which a man might easily pass.

The last of these lakes is a beautiful sheet of clear water, filling a basin of smooth, solid rock, having the western face of the peak for its eastern shore and the southern glacier as its source of supply. [Pl. IX.]

The latter glacier exhibits several small but interesting crevasses, a well-defined ice cascade and other curious features, but it is not so extensive a body as the northern glacier.

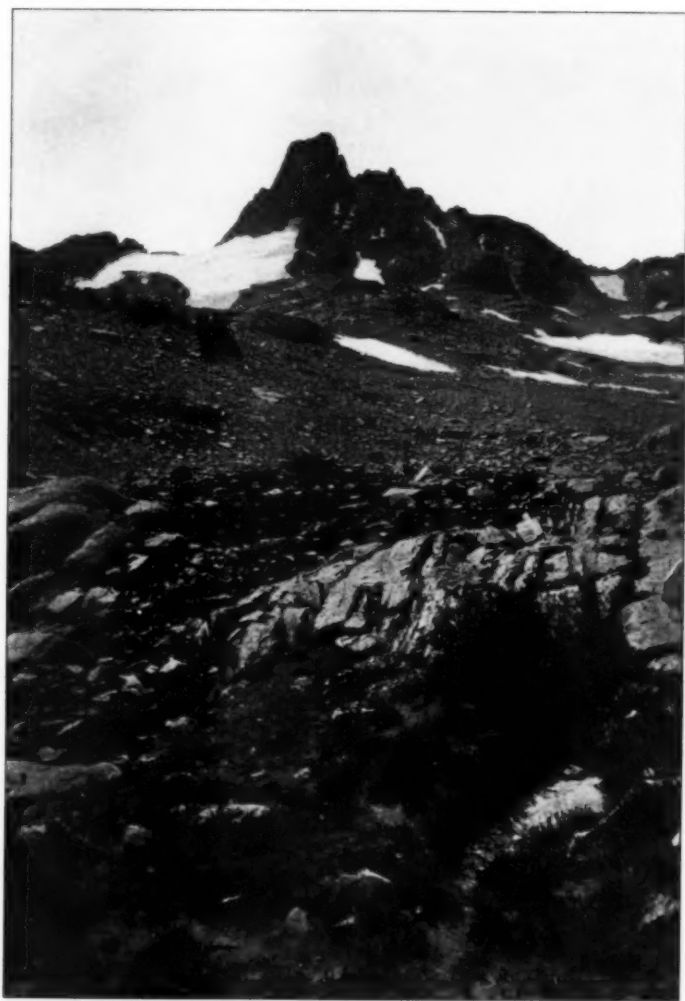
Being unable to walk around the lake, I was obliged to ascend the cliff, my intention being to cross the backbone of the mountain, a little to the north of the summit, descend to the head of the main glacier, and then make straight for camp, which I hoped to reach before dark. In gaining the summit of the cliff, nearly twice as much time was consumed as I had calculated upon. It was ten minutes of six, and, instead of an easy descent to the northern glacier, I found myself on the edge of a perpendicular cliff, which

walled in the third or southeastern glacier. [Pl. X.] This is undoubtedly the body of ice referred to by Clarence King as located in a "deep *cul de sac* opening southward on the east slope of Ritter, and covering an area of 200 yards wide by about half a mile long." The view was wild almost to a suggestion of cruelty.

There remained one unexposed plate in the camera box, and, realizing that I was in for it anyhow, and that a few more minutes could make little difference, I set the tripod on the edge of the cliff—the only possible place—then leaned over and drew the cap off the lens with one foot swinging in air. If my shoe had fallen off, which I am thankful to say did not happen, it would have dropped something like a thousand feet before touching the rock.

My only hope of descent lay in first climbing the remainder of the way to the summit, which I reached in ten minutes. By taking to the glacier at the nearest possible point, and running down its ridgy surface at full speed, I managed to make the upper edge of the rocks just as the sun had set and the long shadows had deepened, and merged into twilight. Climbing the highest boulder, I fortunately caught a glimpse of Whitney,—a black speck in the distance,—and, setting my face squarely in his direction, commenced a race with the darkness. I kept right on, over slippery surfaces and boulders, across patches of snow, jumping from flinty edges, over icy cataracts, turning neither to the right nor left for fear of losing that precious direction; and, just as it became too dark to see to jump—I fairly ran into the mule.

Next morning we passed down the slope of the mountain to the lake, with its hundred islets, and wound among little hillocks of brown and red volcanic rock along the northern side of the lake. The basin is so broad and flat, considering its location in the very heart of the summit region, and the mountain rises so majestically above it, as to form an



BANNER PEAK, FROM CAMP.

(From an elevation of 11,200 feet.)

From a photograph by Theodore S. Solomons. 1892.

almost ideal Alpine landscape. One unconsciously looks along the shore of the lake for the ubiquitous Swiss Hotel.

At a distance of about 3 miles from the base of the mountain the lake pours its waters into a wonderful cañon, which, in its lower parts, is sunk several thousand feet below the general surface of the surrounding mountain mass. Its eastern wall forms a portion of the main crest, as does that of the cañon of the Lyell fork of the Tuolumne. You leave an inhospitable region of rock, snow and ice, and, upon descending rapidly into this beautiful gorge, enter groves of tall trees, skirt the banks of lakes, fringed with water lilies and embosomed in emerald meadows which are beautified by the most luxuriant flowers, ferns and grasses. Truly a little paradise hidden deep in the earth. The remains of an old sheep trail relieves the traveler of much of the labor of picking his way, and leaves him free to observe and enjoy the scenery.

The cañon trends almost due southeast, and is about 12 miles long. A quarter of a mile from its head another stream, draining a lake situated similarly to that along the shore of which I had recently passed, comes tumbling down the western side of the cañon, and, being deflected neither to the right nor left, may be followed by the eye for a great distance. On the same side of the cañon, a few hundred yards further down, is a perpendicular wall of most marvelous and varied hue, extending continuously nearly half a mile—nowhere less than 300 feet high, and often twice and thrice as lofty. Its entire surface is formed of beautifully striated metamorphic slate of every conceivable tint, which has been polished by the ancient ice so that it shines like glass. The beauty of this unique cliff is quite beyond description.

Through the entire length of the cañon the stream runs in a deep and narrow channel, which, in its general form, and in the proportion of its dimensions, is almost an exact

reproduction of the cañon itself,—a sort of gorge within a gorge, similar in many respects to the main cañon of the upper Kern and the gorge through which the river flows. The cause of this singular similarity may be traced to the fact that the entire formation of mother rock is to a great depth quite homogenous, at least as to the dip of the strata, so that the erosion of the present water-course has resulted in exactly the same sort of excavation as the mighty torrents of a more remote period. The angle of cleavage of the rock in the little gorge is seen in some places to be identical with that of the main cañon side, and the basaltic character of the formation is also quite obvious. Along the course of the stream are many falls and cascades, none of which, however, are of great height.

Half way down the cañon I came upon its most extensive lakelet, which I found to be most singularly formed. In the middle of the floor of the cañon extends a kind of wall or dyke of rock, perhaps 30 to 40 feet in height; and where it suddenly ended, the stream, which had been flowing between the wall and the western side of the cañon, had backed its waters round the wall, and formed the lake, which thus occupied the level space between the wall and the eastern side of the cañon. The inlet and outlet of the lake are nearly at the same point.

At the margin of the lake, in the center of a lovely grove of tamarack, juniper and red fir, I found an old hermitage. There was a rude forge and bellows, some peculiarly shaped frames and tools, the remains of a canvas-covered hut and empty cans innumerable—the latter rather spoiling an ideally romantic scene. Evidently some misanthrope, who imagined himself on the verge of a mechanical discovery, or perhaps an old prospector, had retired to this lofty wilderness, away from the prying eyes of the vulgar and curious. If his object were to isolate himself from mankind

there is little doubt that he succeeded beyond his most sanguine expectation.

Treading the devious and occasionally obscure trail, now passing through narrow groves and meadows, again clinging to the side of bluffs which projected boldly across the cañon, after traveling perhaps 5 miles farther we emerge into the valley of the main San Joaquin, where the stream, leaving the main crest, turns abruptly south and maintains this course for many miles, gradually, however, deflecting to the southwest. At the point we entered the valley the stream receives some small tributaries, and we were now in more frequently traveled country, being indeed on the old mammoth trail to Owen Valley. The once celebrated Pass—one of the best in the range—may easily be distinguished as the lowest point of the divide.

The floor of the cañon is here composed wholly of nearly pulverized pumice, so light as to float upon water. For miles there is no soil other than this ghastly grey pumice, and though not barren of vegetation, the region is not exactly a fertile one. On the higher slopes, the trees are fairly thick and tall considering the altitude.

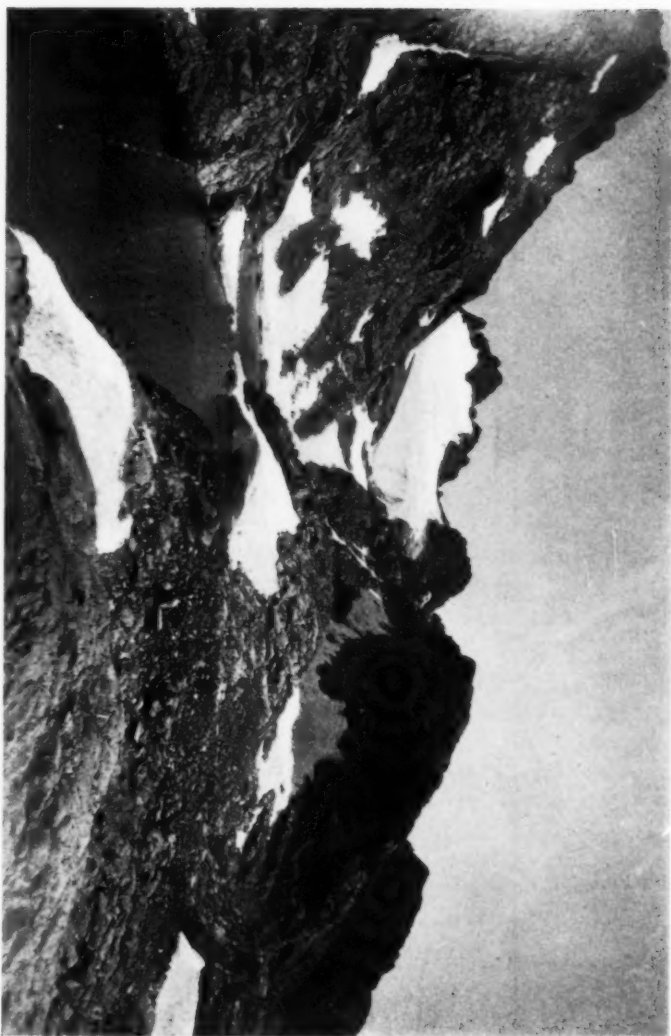
Following down the river from the mouth of the cañon, the banks become exceedingly precipitous in places, the bluffs showing granite outcroppings from the surface of pumice—the first pure granite I had seen since leaving the Tuolumne River. I crossed the turbulent stream with much trepidation, leading the mule slowly from pool to pool between the boulders. Upon the opposite bank it was smooth sailing for a while, until it also became precipitous; when, tantalizingly enough, as I glanced across the river, I saw that the bluffs on that side had ended, and the bank was traversible. Looking about for the least dangerous place to cross, to my intense joy I saw blazings on some trees near the water's edge, and taking the hint, crossed the river at the indicated point. Still following the blazes,

twice more we crossed from bank to bank to the infinite disgust of poor Whitney, to whom this sort of thing was exceedingly monotonous.

At length, after traveling about 3 miles from the main crest, we came upon a perfect wilderness of pumice in the shape of an open rolling valley, its floor sparsely covered with trees, its distant slopes more thickly timbered. Here were many cattle trails, and among them a well-defined horse and mule trail, which latter it is of the greatest importance to identify and follow if one would avoid losing the route pursued by the cattle men.

Some miles farther down the river, near the place of crossing of the Mammoth trail, there is a splendid specimen of columnar basalt, which was photographed many years ago by Mr. J. M. Hutchings while crossing the mountains. In every scenic freak the shepherd recognizes the handiwork of his Satanic majesty. This formation is therefore known to local fame as the Devil's Woodpile. Before reaching this point, however, the route I had been pursuing led me away from the river, so that I did not encounter this remarkable fuel.

Continuing down the pumice-covered valley, its western side grows steeper and gradually approaches the river. Finally it becomes almost a naked granite wall; and as the floor of the valley changes to low rolling hillocks, looking upon this western wall, we observe, flashing among the trees that grow upon the cañon side, a series of cascades plunging down from a notch in the wall. Back of the notch we suddenly catch sight of some sharp black teeth, standing out, in wonderful contrast, against the grey of the granite and the ashen hue of the pumice. One word escapes the lips—"Minarets!" And yet, according to the map of the State Geological Survey, on which alone the position of these peaks are indicated, the Minarets are only 3 miles south of Mt.



THE SOUTHERN GLACIER OF MT. RITTER.

(Elevation, 12,500 feet.)

From a photograph by Theodore S. Solomonson. 1892.



Ritter; and here we are nearly 3 days' journey from that mountain.

From Ritter, however, our route has been northeast, southeast and south, and now the Minarets are as nearly, as one might judge, from 3 to 5 miles due west. A little figuring shows the position of these remarkable pinnacles to be about 8 miles southeast of the Ritter group. But are they the Minarets of the old survey? Probably not. The lofty crest which extends from Lyell to Ritter practically terminates with the latter peak, although its extension southward may be traced as a series of crags and pinnacles of gradually diminishing altitude. From Ritter only an endwise view is obtained of this line of pinnacles, and it is therefore quite impossible to judge of the comparative sharpness and isolation of the different groups, or pick out the Minarets with any degree of certainty. From the west, however, a group of needle-like pinnacles are observed close to Mt. Ritter, and these are undoubtedly the objects represented on the old map and called the Minarets. They are situated about 5 miles northwest of the group at the head of King Creek, and are probably not so striking in appearance as the latter, especially when viewed from the east. The King Creek group are the Minarets of the sheep men, of the traveler crossing the Mammoth Pass, and of the prospectors who named the mines found in their vicinity after the peaks. Which are the "Minaritos," a picture of the "pass" through which, appears in an old magazine article by John Muir? The probable fact of the matter is that, upon a near approach, the whole crest from Ritter southward will be found to be thickly studded with pinnacles similar to the two groups which now bear the name The Minarets.

It was 3 in the afternoon when I reached the river, opposite the falls. Removing the gun and boxes, I packed a day's provisions in a canvas saddle-bag, fastened it on one side

of the saddle, and the camera-box on the other, forded the river—here a stream of about the size of the south fork of the Merced—and led Whitney up the cañon wall to the north of the cascades. The pumice was, as usual, an exasperating annoyance, but once upon the summit we had nearly level ground. The stream I subsequently found to be King Creek, or Minarets' Creek, sometimes so called. It rises in the snow fields at the base of the Minarets, and flows straight west for about 3 miles, when it tumbles over the cañon wall of the San Joaquin and joins that river. For the first mile or more the ravine of King Creek exhibits all the external characteristics of the ordinary granite country of the Sierra—boulders of all sizes, flat, ice polished surfaces, a naked, rocky stream bed. Suddenly the superposed volcanic rock is encountered, and the line of demarcation is strikingly definite. I noticed several outcroppings and even free boulders, whose upper portions were of a dark volcanic material, the lower portions being of ordinary granite.

The Minarets themselves are of a hard black flinty lava, rising from a general surface of dark red and brown volcanic rock, which in its turn sets upon the granite, as just described. In the ravines and gullies the metamorphic rock extends farther down than it does on the hillsides, showing that the volcanic material was poured out upon the granite to an uncertain depth, and flowed down in all directions, naturally traveling farthest along the course of the streams.

I soon came upon a trail which had been recently traveled, I afterward discovered, by a party of mining men who were then negotiating for the sale of the valuable iron mines discovered near the Minarets. After passing a very pretty lake and meadow, the trail avoided the creek and zig-zagged along the hillside. I made camp near the main stream, and the next morning strapped the camera on my

back and after a couple of hours' hard walking reached a suitable point of view, from which I photographed the pinnacles; and then, returning to the San Joaquin, repacked Whitney with the boxes, and continued on down the river.

The afternoon shadows found us toiling through a magnificent fir forest on the southern slopes, far up over the river, which, from the point where the trail leaves it until it reaches the foothills, nearly 60 miles away, is quite impassable for animals, and, in places, nearly so for men. About a mile or two from the river, as the trail began to ascend, I encountered a recently deserted military camp, the first graphic suggestion of human occupancy that had greeted my eyes since leaving old Lambert's cabin in the Tuolumne Meadows. Some stakes driven into the ground, and a placard posted on a tree, gave notice that here was the boundary (and I think the corner) of the Yosemite National Park. Standing thus on the line separating the prohibited from the unprohibited, I waited in vain for a deer or other eatable animal (provisions were distinctly low), to appear south of the line, for, of course, I would not have discharged my rifle within the limits of the Park!

Through the shady forest of spruce and fir, [of the latter the brilliantly beautiful red variety (*Abies magnifica*) predominating,] we pursued our way until camping time. I made a glorious fire, which illuminated the forest for many miles around; and, after supper, Whitney approached it and winked contemplatively at the cheerful blaze for several sober hours. We were in a Sierra forest again, in all its virgin beauty, not a vandal buzz-saw within 50 miles. So fine and tall were the trees as to make one forget that, after all, it was only an Alpine forest, and no part of that magnificent lower sugar-pine belt which is at once the pride and the wealth of the whole southern Sierra.

Through the trees, far down the forest slopes, next

morning, we caught an occasional glimpse of the great cañon, and toward noon, after passing some pretty little sylvan lakes, the trail wound down, and we again approached the river, now a majestic stream, flowing between frowning walls of granite. A ticklish bit of trail was the final descent to the willow flat near the river, where the sheep men had completed a natural three-sided corral and made a sheep camp.

I calculated that I must be still about 15 miles above the point of confluence with the south fork, and should travel southeast again in order to explore the intervening country. Fortunately, the trail led in precisely the desired direction. Leaving the river, it led among rocky bluffs, skirting an occasional terrace of basalt, and, upon turning southward and rounding a hill, I beheld a miniature Yosemite Valley, whose stream joined the main river some 2 miles west. I gazed in spell-bound admiration. The same winding silver ribbon, the same bright bits of meadow, the talus slopes, and lofty grey granite walls surmounted by rolling forests. Directly opposite was a wall not so high as El Capitan but almost identical with it as to color, carving and perpendicularity.

Also on the opposite side, and at the lower end of the cañon, a stream came tumbling down the bare granite wall, alternatingly in foamy dashes and green, ribbon-like glidings. Far up over the brow of the steeper portion of the wall it could still be seen, the whole cascade seeming fully half a mile long; but the season was so far advanced that the volume of water was small. I should like to see that cascade in June.

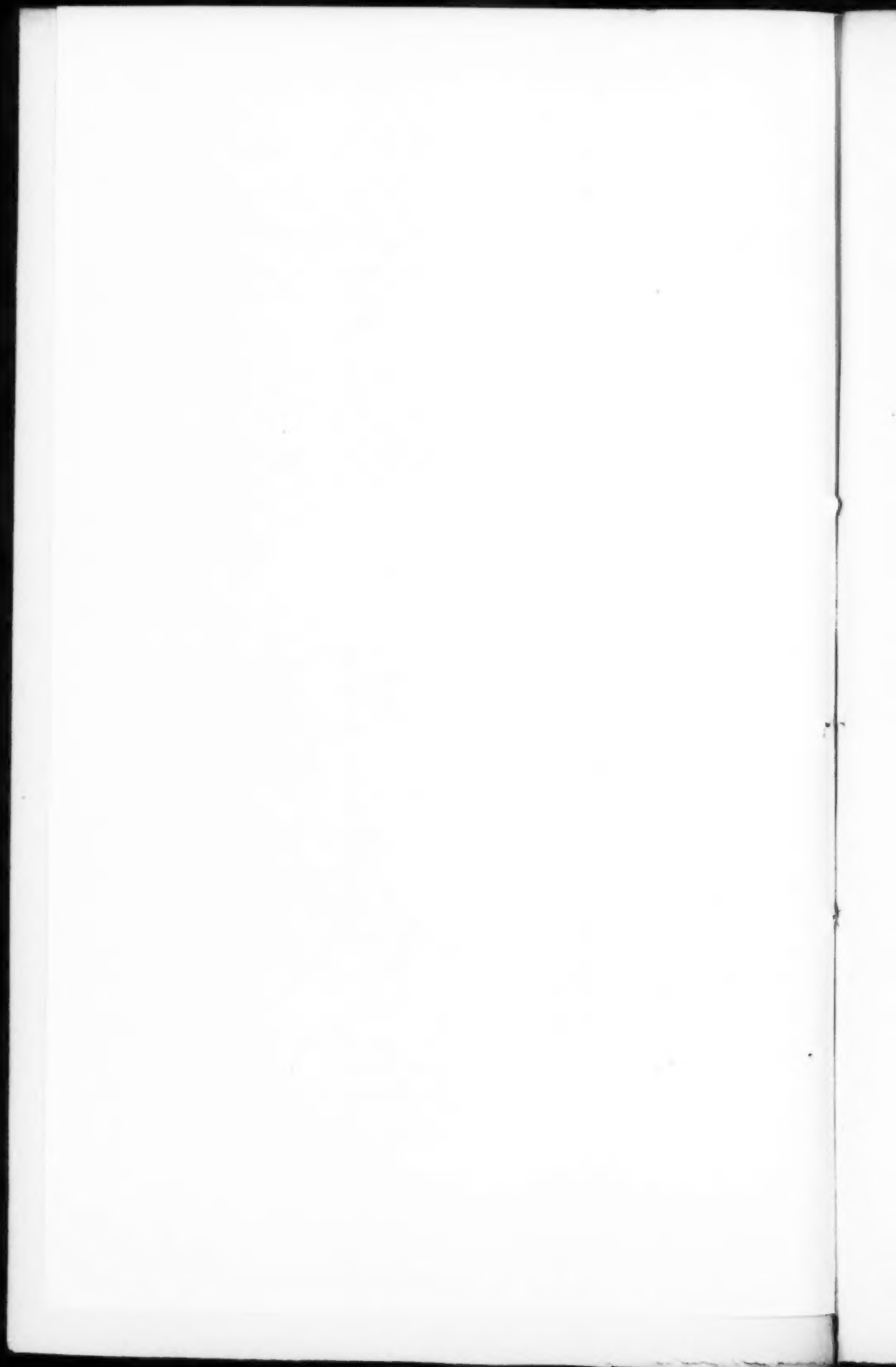
There was a kind of crazy trail leading down the shattered, undergrowth-covered cañon side nearly as long and quite as steep as the old Indian Cañon trail of the Yosemite. Forgetting it was long past lunch-time, down we went, Whitney allowing me to place his feet for him



LOOKING SOUTHEAST FROM MT. RITTER.

(From an elevation of 13,000 feet.)

From a photograph by Theodore S. Solomons. 1892.



when the trail grew all too much for even his sagacious ingenuity. The brightest meadow spot, as seen from above, upon reaching and fording the stream, turned out to be a swamp of the most villainous description. At the base of the cañon wall a stream divided, both branches ultimately flowing into the river and enclosing the swamp, which had become such through the continual inundation of the subsoil by the circumfluent rivulet.

As I crossed the river something jumped at a fly; and, still oblivious to the now imperative demands of the inner man, I must needs ransack the pack for hook and line, bent on ascertaining the nature of that something. It turned out to have been a trout. One hook proving inadequate to the demand I tied on another, and began hauling them out, as fast as I could whip the stream, two at a time, and not one under eight inches in length.

The presence of trout said very plainly, "No more falls down stream on the San Joaquin." For the sheepman does not, as a rule, waste his precious time stocking streams. Apropos of the sheepmen, I afterward learned that such of the fraternity as had visited the cañon were less strongly impressed by its scenic features than by the abundance of trout; hence they gave the stream the name Fish Creek, ignoring the cañon completely, except (possibly) to recognize it as forming the banks of the creek.

The valley, though of not more virgin freshness than other places which have once been afflicted with the disease called sheepherder, was enticing enough to hold me for two days, during which I fished, sketched and photographed, living the while principally upon trout and wild gooseberries, and so avoiding injudicious inroads upon my remaining slender stock of provisions.

On August 28th I climbed out of the valley on the opposite or southern side. I had spent several hours the

previous day in searching for missing portions of the nearly obliterated trail, which as a whole corresponded exactly to descriptions of the famous Chinese puzzle. And, to add to the difficulty, it maintained the steepest angle at which it was possible for a laden beast to ascend—at every jump Whitney literally drew himself up by his fore feet. At a point about half-way to the summit a kind of promontory jutted far out into the valley, and here I took my last photograph of one of the finest bits of cañon scenery to be found in the Sierra Nevada.

Above the cañon the trail was lost in a million sheep tracks, but I traveled south, following the stream which I have already alluded to as descending to the valley in a remarkable cascade. At a distance of some 3 or 4 miles I crossed, and, upon climbing the hill, found myself on the divide overlooking the great south fork of the San Joaquin. I camped on the shore of a little bench lake, whose western shore, save for a fringe of trees, formed the horizon line in that direction, and into whose waters dipped, seemingly, the setting sun.

From the divide the topography of the country was spread out to the view as upon a map. For miles in either direction the country shelves down very evenly to the south fork, whose numerous tributary streams, flowing westward down the long, regular slope, furrow it with deep, trough-like corrugations. For two days I tried in vain to cross the river which, as far as the eye could see, flowed in a perpendicular gorge, which through the ages the stream has carved out for itself in the solid granite. I saw no traces of glacial action.

In the morning of the last day I had left Whitney tied to a sapling, while I descended to the river in quest of a place of possible descent and re-ascent on the opposite side. I made my way down the mile or two of rolling forest slope, taking my bearings very hurriedly. Arriving at the edge of the

gorge I skirted along for an hour or more, several times half descending the river. Some distance up stream I found a likely place, and soon worked out a possible route of descent, carefully marking the way as I advanced by piling monuments at every turning point. It was late in the afternoon before I had finally connected the forest above with the stream bed below and, my task done, turned my weary steps in the direction whence I supposed I had come. No mule—no familiar granite outcropping—and I soon found myself completely at sea.

Night was almost at hand. I had eaten nothing since morning but a few berries; my clothing was light and the nights were cool. I had only my compass, pocket knife and perhaps a dozen matches to assist me in reaching civilization in the event Whitney should break away before I could find him. The latter contingency troubled me greatly—indeed, I thought it more than probable that he had already twisted himself loose from the sapling and wandered off. At last I struck the trail near which I had tied him, but before I was able to determine which direction to pursue, the darkness obscured the trail—one difficult to follow in daylight—and I was confronted with the responsibility of deciding whether it would be wisest to use my few matches in the doubtful effort of following the trail, or save them for the nights during the enforced journey west, should I fail to find the mule in the morning. The matter did not seem as trivial then as it sounds now; and, not being able to choose between the two, I effected a compromise, so to speak, by using half the matches on the trail. They helped me on about a hundred feet. Then I groped my way to the first gulley, supped on water and raw gooseberries, taking the two courses in about the proportion of a gallon of the former to a gill of the latter, built a three-cornered fire, and, in spite of my anxiety, slept till morning, for I had been sorely fatigued.

In the twilight of the dawn I sat on a log waiting until it should grow light enough to follow the trail. My eyes were sore from the smoke and glare of the fire, my face, hands and clothing were dirty, and all inside was a gnawing indescribable. The excitement of the night was gone. I was wrapped in the cold, grey dawn of another day, and the ashes at my feet were dispiritingly suggestive.

It was soon quite light, and, pulling myself together, I turned in the direction of the trail. Over a mound of granite, around a big yellow pine, and then I stood rooted to the spot, for there was Whitney, the pack on his back, dragging his lead strap, and quietly browsing near a pool. What a rise in the thermometer of my spirits! Let us draw the curtain over the scene of the greeting, which was quite too affecting for words.

Across the gully, and a little way up the opposite bank, I found the sapling, peeled and twisted from its all-night struggle with the famished mule. I had fasted and shivered within 200 yards of food and blankets! To add to my joy, a shepherd—*the first human being I had seen for nearly a month, and the handsomest mortal that was ever created*—rode over the hill, and, in broken English, conveyed the joyful intelligence that the sheep bridge was on the main river, a few miles above its confluence with the south fork. To surfeit me with bliss, he actually told me of a trail leading thither. That day the forest rang with songs certainly strange to its ear and long unfamiliar to mine; and, at precisely 6 o'clock in the afternoon, I had the squarest meal that I had allowed myself for two weeks.

The entire country included between the main and South Forks is rolling, and in no respect unlike the granite country elsewhere in the Sierra. The gorge of the main river is however deep and strikingly savage in appearance. While descending to the excellent log bridge, which solved the problem of the last 40 miles, I caught several glimpses, and

likewise did the camera, of Prof. Brewer's balloon-shaped dome, situated at the apex of the angle formed by the two forks. The most perfect dome in the Sierra he called it; but as the writer has not seen all the domes in this mountain range of rounded granite formations, it is difficult either to corroborate or deny the assertion of the enthusiastic geologist of the old survey. From the north and northwest it is much more perfect than any of the great domes of the Yosemite and surrounding region, and in dimensions and general setting I considered it by far the most impressive and imposing object of the kind I had ever seen.

After two day's journey across the meadows of Jackass Creek and the Chiquita Joaquin, where I again fell into the Mammoth trail, I ran across a most hospitable sheep camp just as the food question was beginning to assume colossal proportions, and I had begun to harbor wicked thoughts respecting the capacity of my rifle to transform into beef some innocent cattle I passed on the trail. Out of gratitude to three of the kindest and most genial herders who ever superintended the transforming of Sierra grass into mutton, I took a picture of their camp in the Basaw Meadows, besides filling an aching void in one of the molars of the packer, which I did by way of heaping coals of fire on the latter's head for having christened me "The Photographer with the Appetite."

The Basaw Meadows lie just over the divide from the Madera Flume and Trading Company's Mill, situated on the headwaters of the Fresno River. From the old mill a wagon road runs north to the Soquel Mill, of later construction, and at that time busily engaged in the laudable undertaking of removing all traces of the old Fresno grove of Big Trees from the face of the earth. Here a well-chosen trail skirts the Merced divide into Sheep Camp on the main road from Fresno Flats to Wawona.

Early on the evening of September 10th I shook hands with Mr. Galen Clark, in the Yosemite Valley, who kindly informed me that my friends there were about organizing a relief expedition to rescue me or kill the bear.



MT. BARNARD.

BY C. MULHOLLAND.

On September 24, 1892, a party started from the residence of W. L. Hunter, at George's Creek, 6 miles south from Independence, to make an attempt at climbing a peak of the Sierra Nevada that had never before been climbed, and was yet without a name.

The party consisted of W. L. Hunter and his two sons, John and William—the former aged about 17 years and the latter one year younger. The fourth member of the party was C. Mulholland.

Mr. Hunter and the writer have been in the habit, for many years, of making ascents of peaks of the mountains west from Independence and Lone Pine, and this trip had been determined upon when an ascent of Mt. Williamson was made some years before.

The party and their supplies were conveyed by wagon from the residence of Mr. Hunter to the mouth of George's Creek Cañon, a distance of about 8 miles in a southwest direction. At the mouth of the cañon each one of the party spread a single blanket upon the ground and rolled up in it a part of the food necessary to be taken along. This consisted of boiled ham, dried beef, crackers, tea, coffee and sugar. Knowing well what labor was before them, the party took not an ounce more weight than was absolutely necessary for the trip. Almost immediately on entering the cañon hard work begins. The stream is large, and rushes down a gorge filled with huge boulders;

the cañon is very narrow, with vertical walls of granite hundreds of feet in height. Willow and birch grow so dense that it is only with much difficulty a passage can be forced through it; the bushes grow up right against the granite walls, and it is by hard labor only that a party can make any progress. Even at midday there is but little more than twilight in this part of the gorge.

About one mile up from the entrance, the cañon is a little wider than below, and here the first timber is met. The trees are black pine, and of good size; many are 150 feet high, with trunks from 3 to 5 feet in diameter. Numbers of the trees have fallen, and the great trunks lie piled upon each other in the utmost confusion. All these rest upon huge boulders, and the labor of climbing over these obstacles could not be understood except by those who had tried it. There is about a half mile of such obstructions to be passed, and again the cañon is found wider; from wall to wall the width of the gorge is about a quarter of a mile. From the cliffs on each side a bank of loose stones, gravel and soil slopes down to the stream. This is just as steep as the loose stuff will lie, and makes travel very laborious. The detritus slides away from under foot at every step, and advance is made slowly and under constant strain; the toil is great, and this will explain why such care is necessary not to overload with supplies.

But the cañon continues to get wider, and about 4 miles up has a width of about a half mile. North of the stream is a plateau from 100 to 300 yards wide, and, although the ascent is still steep, the ground is firm, most of it clear of brush, and the party could make good headway. At a point about 6 miles up, the cañon divides; one of the branches makes the south fork of George's Creek. There the party camped for the night in a grove of large pine trees.

By dawn next morning all hands were stirring.

Breakfast was hurried over and a start made, as all knew that a hard day's work was to be done. It was decided to go up the north fork of the cañon. Only a few crackers and a little cold meat were taken along; the blankets, food and coats were left at camp. From the camp to the upper timber line, distant about one and a half miles, most of the way is over very steep ground, in part covered with boulders, and the last two or three hundred yards so steep that hands as well as feet are necessary in climbing. Just on the summit of this ledge is a small grove of tamaracks, where two of this party had camped and slept one night, eight years before, when making an ascent of Mt. Williamson. This is the upper timber line at that place.

From the tamaracks a narrow strip extends up the cañon about a half mile, covered with fine grass and moss, and feeling like soft carpet under foot. The north side of the cañon is a slope of about 2000 feet of loose granite and other detritus, extending to the summit of the ridge that ends at the base of the peak of Mt. Williamson. The south side of the cañon is a vertical wall ending in the peak the party intended to climb. Above the strip of grass and moss very large boulders fill the cañon; over this the party climbed about a quarter of a mile, and then came upon a glacier that extends to the base of the ridge extending south from the base of Mt. Williamson. This glacier is about a half mile in length, it is nearly level, and was easy to travel over to the base of the sloping mass of loose boulders and other matter on the side of the ridge up which the party must climb. The ascent of that slope was the hardest work yet done on the trip; but at last it was climbed, and the party rested on a narrow crest of granite.

It was now past noon, and the worst part of the climb was yet to be done. After a very short rest the party climbed out on to a narrow ledge extending southward. On one side of this ledge the cliff is vertical upward; on

the other side is a deep precipice; between these there was just room for the party to move carefully in single file. Mr. Hunter was in the lead, and, after going about 200 yards, he found a narrow fissure in the cliff, up which he climbed. He being by far the best climber in the party, had to help the others up.

The other—the west—side of the ridge was found to be an awful precipice of granite blocks of immense size, piled up like cyclopean masonry. At the bottom of the precipice is a small lake, apparently very deep. From the ice about the shore great masses had broken off and were floating over the lake like icebergs. The party climbed along, southward and upward, over the steep expanse of boulders, that appeared ready at any instant to go crashing downward and bury every soul in the lake. The labor was excessive; the boulders were mostly of immense size, and climbing from one to another was very difficult as well as tantalizing.

Each ledge above us seemed to be the summit of the mountain; but as each was surmounted it appeared to be but one of a series that would extend into the very heavens. All this time Mr. Hunter kept two or three hundred yards in the lead. At last, when the other three were very badly tired and nearly despairing of reaching the summit, he gave a shout that attracted our attention, and called to us that we were nearly over all difficulty. A little while brought us where Mr. Hunter was waiting for us at the base of a vertical wall of granite. Going around this, we found a fissure in the cliff, up which we climbed, and in safety reached the summit of the peak.

This summit we found to be a great block of granite, affording plenty of space for the whole party to rest upon, but not much more than that. The north face of the peak is a precipice, not less than 3000 feet deep. From the east face a ridge extends down the cañon to where the south

fork of George's Creek begins. The west side of the peak is already described. The south side will be described farther on.

After resting a little while the party built a small monument, and in this was put a record of their names and the date of the ascent. If a line were drawn from the summit of Mt. Williamson to that of Mt. Whitney this peak, which the party decided to call Mt. Barnard, in honor of the astronomer of Mt. Hamilton, would be but a very short distance west from it. Mt. Williamson is north from Barnard, and Tyndal a little north of west. These three peaks form a triangle, each side of which we estimated to be about one mile in length.

By the time the monument was completed and the record placed therein there was no time to lose in getting back to camp. We climbed down the fissure to the base of the pinnacle forming the summit of the peak, and then turned to descend the south face of the mountain. This was found to be less broken than the west side, and our progress down was rapid.

About one thousand feet below the summit we found the ground to be loose earth and long strips of sand. Down this we went with a rush. The sun was near setting, and to get out before dark, where we would be sure of being able to reach camp, we had to take some chances. But all went well with us. Before dark we were in the bottom of the south branch cañon, and soon afterward reached camp, very tired, but well pleased that we had ascended a peak never before touched by human feet, and bestowed upon it a name that will be remembered as long as the stars are studied by human beings. The height of Barnard is about 14,300 feet above sea level.

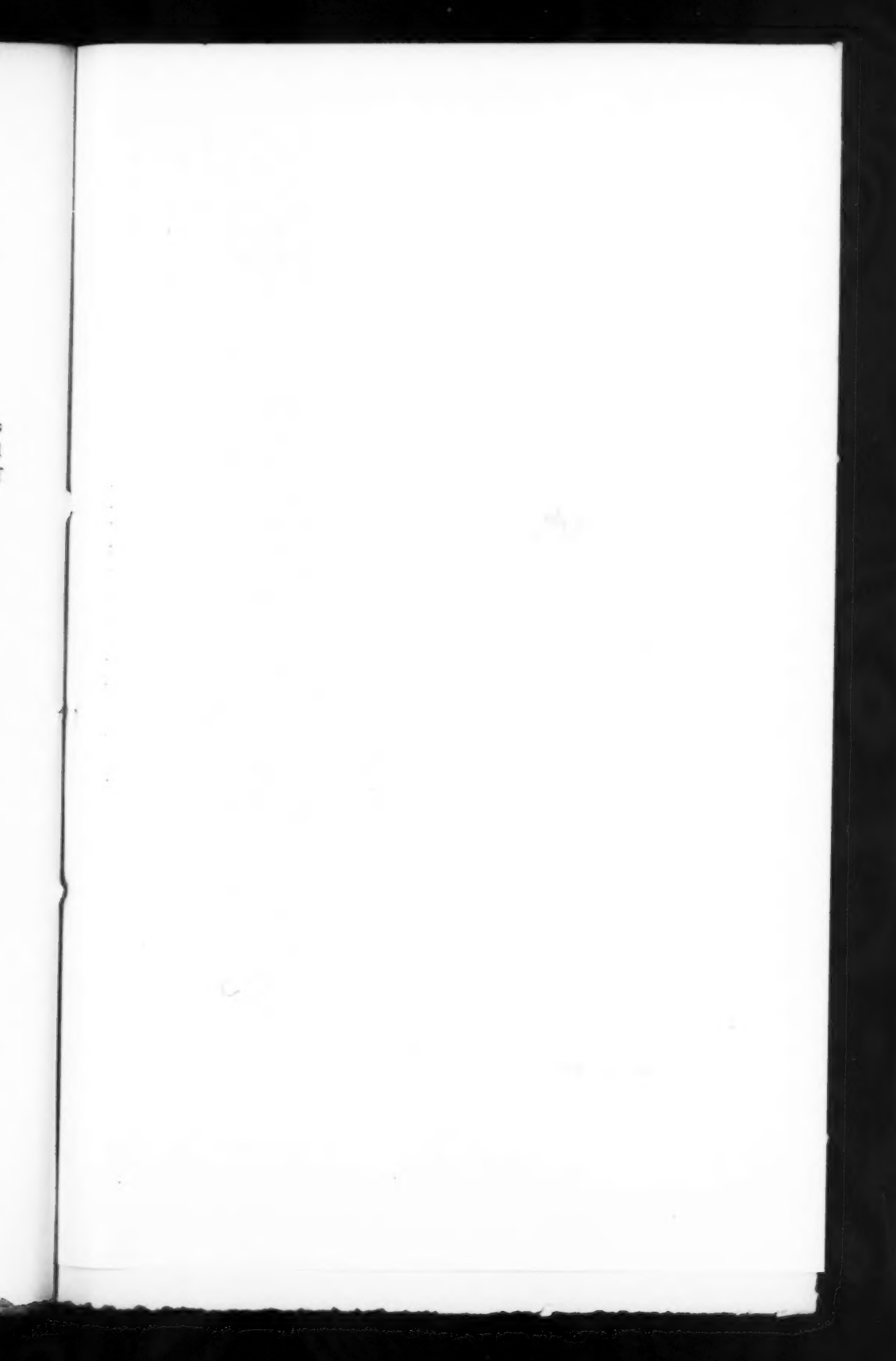
THE ROUTE UP MT. WILLIAMSON.

BY A. W. DE LA COUR CARROLL.

Our party camped over night at the mouth of George's Creek Cañon, which is about eight miles from the scattered settlement of George's Creek, a location nine miles south of Independence (Inyo County). The following morning—20th August—we commenced our tramp at 7:15; Mr. Hunter, of George's Creek, being the leader of the party, and the best authority as to the mountain climbing of the district. Mr. Mulholland, of Independence, an enthusiast on the matter, Mr. and Miss Skinner, Mr. Hunter's son and myself formed the company, together with an Indian and a Mexican to carry what they could of the necessary provisions; we also having good packs, for the way we had to go is now utterly impassable for animals, much of it, for the first part of the journey, through brush, and all unmarked save what we have done in cutting our way.

The route to take is: Keep north of creek for about half a mile, then cross; keep on until you see a very large rock in center of cañon, with a small pond formed by the rock partially damming the stream. Still keep south of creek until you have gone about one mile from first crossing, and you will come to several large logs lying irregularly across the water. On these make best way you can to the north of the stream, and keep north the remainder of the way, and always within a few hundred feet of the water.

We had lunch at 12 o'clock, took a rest of about an hour, then started on. It is useless to attempt a close





MT. TYNDALL, FROM MT. WILLIAMSON.
From a photograph by A. W. de la C. Carroll. 1893.

description of the way. It is, from the second crossing, not difficult. About 5 o'clock we reached a tamarack grove, which is the last "bunch" of trees up the cañon. *En route* we passed the south fork of George's Creek; and, still further on, there is an abrupt termination of the direct line of the creek; and, just at this point, you keep to the right, climbing a considerable rise to the tamarack grove—which is the place to camp—plenty of water and wood for fires. We believe the altitude here, 7000 feet from George's Creek mouth, there 5000 feet above sea level.

Next morning, at 7:30, we left the tamarack grove for the summit. Made our ascent up the ridge to the north of camp, and came out at a north northeast point, then walked along a gentle slope until we came to the very base of Williamson Peak, and on the eastern slope. Some of us went along the eastern slope northwards, and past a pond or small lake, *then* curved up; but I found much the easier climb is to keep on from what is called the backbone of the ridge which I have noted. There is not very much difficulty either direction. The credit of finding out the better course is due to earlier explorers.

We reached the summit at 12:30, and were the fourth party to accomplish it; failures of access being due to taking other lines of ascent. Miss Skinner was the first lady to make the climb. I had the satisfaction of obtaining the first views from Mt. Williamson, having "packed" my camera there, and one of my great objects in doing so was to procure views for the Sierra Club.

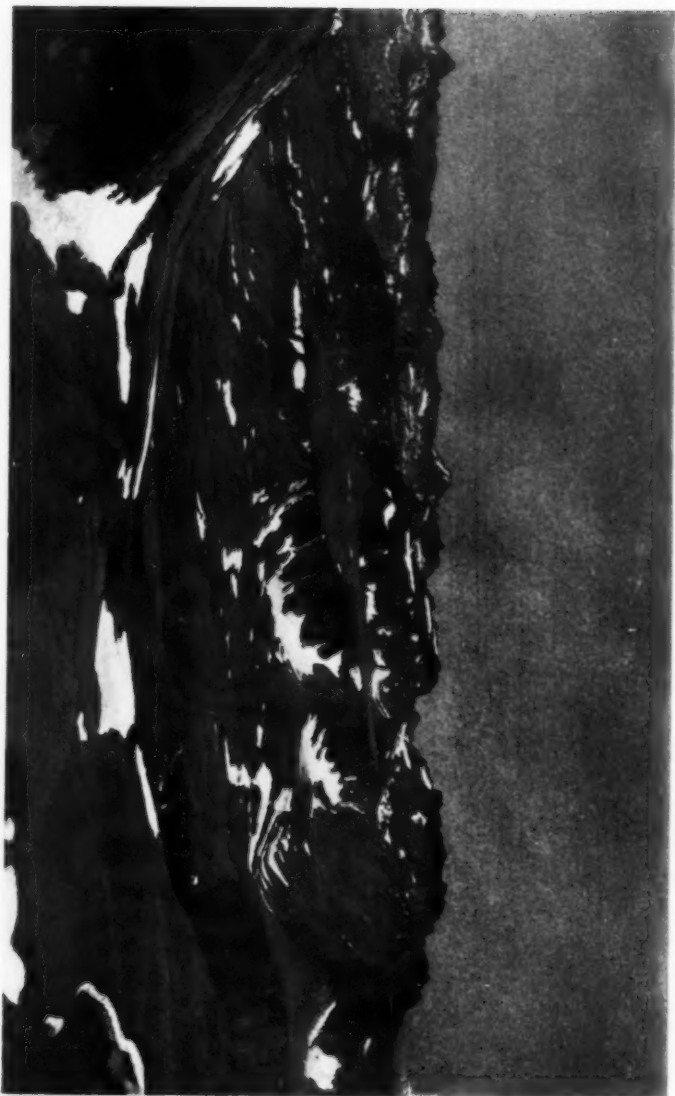
We left the summit 3:45, reached the tamarack grove 5:25. Next day left the camp 6:25 A. M., reaching mouth of cañon 12 o'clock.

The views I am forwarding will give a better idea of the mountain scenery than I can. The cañon is very lovely,

and grand in parts—steep cliffs, pine trees and flowing water all the way.

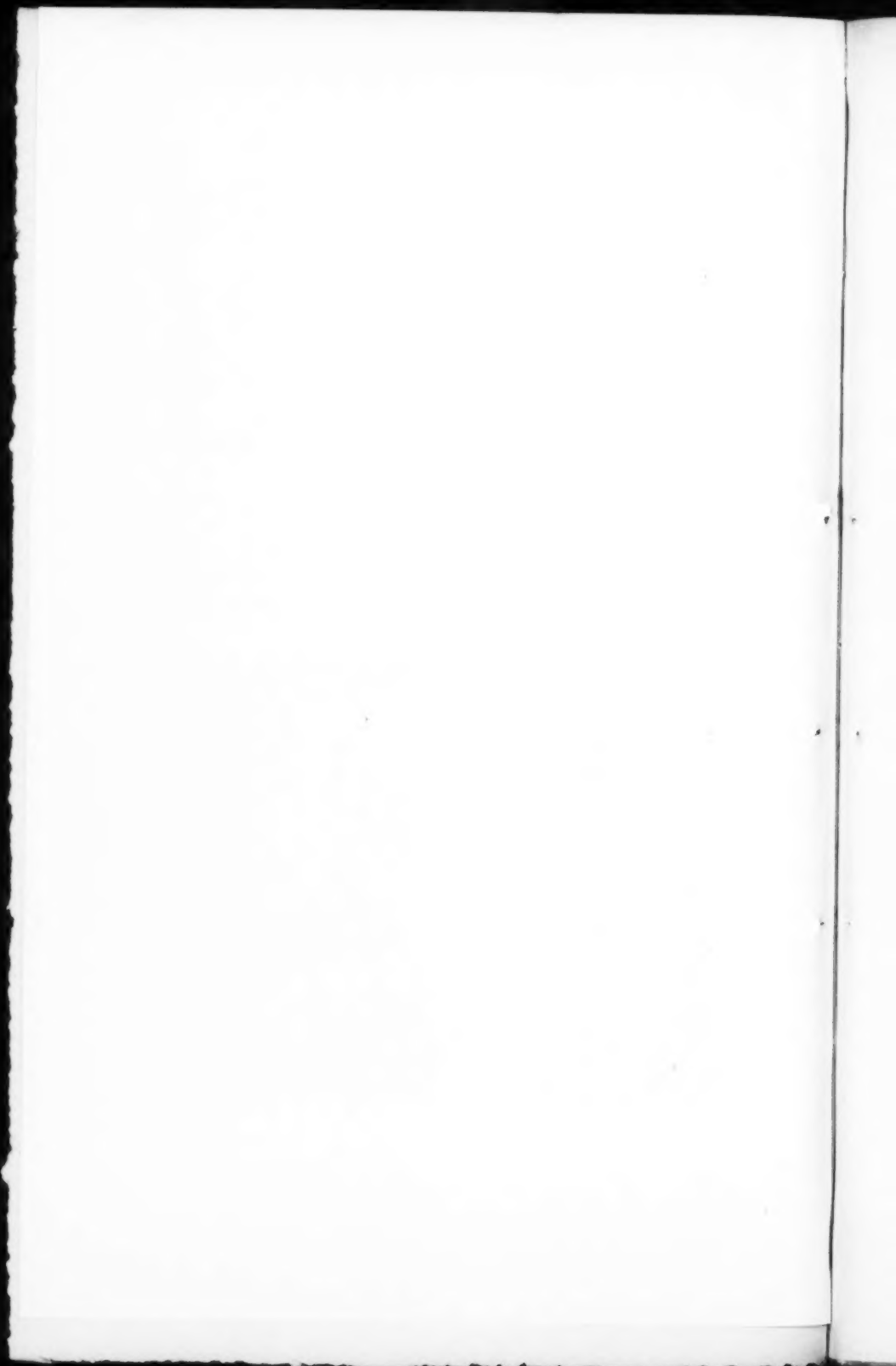
I crossed the creek about a mile and a half from the tamarack grove, when going up, in order to obtain a view looking down the cañon, at a delta with low green brush enclosing a patch of long grass, from which I started a number of grouse, and, near it, three deer. The view down is very fine, but I do not think the photograph sufficiently good to send you. Another view I regret not having for you is of the Kern Valley, as seen from Williamson, and which is by far the grandest from that elevation—the highest (judging by instruments at our disposal) of the range, except Whitney.





MT. BREWER, KERN AND KINGS RIVER DIVIDE.

From a photograph by A. W. de la C. Carroll. 1893.



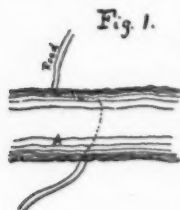
NOTES ON THE KING'S RIVER AND MT. WHITNEY TRAILS (JULY AND AUGUST, 1890).

BY J. N. LeCONTE.

Fresno is an excellent place to start from, being on the main line of the railroad and due west of the King's River Cañon. We had considerable trouble obtaining donkeys here, and had to send as far as Raymond for them. Mules and horses, however, are easily obtainable. Excellent pack-saddles and bags can be had (made to order) at any of the harness stores.

On leaving Fresno take the main Centerville road. This is one of the most frequently traveled roads in the county, and is surveyed due east on a section-line 17 miles to Centerville. Any one can direct you to the road. A street-car runs out on it for a mile or so. There are many irrigating ditches along the way to furnish water. Cross the branches of the King's River a mile or two beyond Centerville. The main branches are bridged, but the smaller sloughs must be forded, which may prove a great inconvenience to pedestrians, if the river is as high as in June, 1890. A good camping-ground can be found anywhere along the river, with plenty of standing feed. After crossing the last slough the *road forks*. Take the one to the *right* or *south*. A short distance beyond is the so-

called '76 ditch or canal. Cross by a ford running as follows:



At A the water is deep. Still continuing east, enter between two barren hills, the first in the range. The one to the south is Mt. Campbell, while that to the north is Tcho-ne-tum-ne Mt. Beyond these hills is a large valley, cultivated over its entire extent. Soon after entering it the road forks again, and the right-hand fork is taken running along a fence for a short distance. At the base of the first real ascent is a small farm house where one may camp, but it is not the best of places.

Now comes a long ascent from the plains some 2000 feet into Squaw Valley. The road is steep, and there is very little water along the way. Squaw Valley is a very good place to camp. It contains plenty of standing feed, is covered with beautiful groves of oaks, and abounds in small game. A good camping-place is at Cherry's, $1\frac{1}{2}$ miles beyond the school-house. From Centerville to Squaw Valley is 21 miles. The road now bears off to the right, crossing the ridge on the eastern side to the town of Dunlap. This is the last settlement before reaching Independence, in Inyo County. The road descends along a stream to the valley of Mill Creek. At the school-house the road forks, and you must take the one to the right running *up* the valley of Mill Creek. One can camp anywhere along this creek. (Altitude about 2100 feet). At the upper end of the valley the road begins to ascend by an extremely steep grade. It is a miserable road, badly washed out, and rarely used. The forest-belt is first encountered at an elevation of about 3500 feet, and at Happy Gap (5200 feet) we have sugar-pines and firs, and are in the heart of the forest. This is just above the Flooded Meadow, or the site of Thomas' old Saw Mill

Ranch. You will strike here a good wagon-road coming in from Visalia, and running north to Moore and Smith's saw mill. *Do not follow it*, but take a dim road to the right, or, better yet, make your way down to the Flooded Meadow Lake, just below. This, by the way, is a most excellent camping spot, with abundance of meadow land all around. From Squaw Valley to Flooded Meadow is 21 miles.

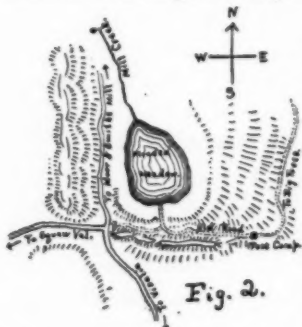


Fig. 2.

To reach the Big Trees, take the old road, which is at the southern end of the lake, and whose ruts can be traced to the spot where they disappear under the water. Strike back on this road up the hill, and branch off to the left at the summit of the ridge. This road will lead to a post camp in a grove

of sequoias. The people here will direct you. Go on to the top of the ridge, and take the old skid road, which, in 50 yards, will turn into the Big Tree Road, which bears north. If desirous of reaching the Big Trees do not branch off on to any trail. In order to reach the Grand Cañon, turn off from the road on a trail to the right, about a mile before reaching the grove. This fork is at the crossing of a small stream, and the trail runs up along the stream on the northern bank for 50 yards or so, finally bearing off to north, and leaving the road to the west. One can camp anywhere along here, as meadows are abundant and the forests of the finest description. (From Flooded Meadow to Big Trees is 4 miles, to forks of trail is 3 miles.) The trail runs north for a mile or a mile and a half before turning up a steep, rocky hill to the east. Above this steep place is Round Meadow, which is an exquisite camping spot. Leaving Round Meadow, the

trail, which is rather scattered here, turns north again, and runs up the slope in that direction for a few hundred yards. At the summit of the ridge the trail forks, and finger-boards on a tree direct the way. The *right*-hand trail goes to the King's River Cañon, the left to Long Meadows. The King's River trail turns eastward again, and preserves this general trend all the way to the cañon. Beyond the guide-post the trail descends a long hill to Little Boulder or Ten-mile Creek. While descending this hill, one obtains magnificent glimpses up the great cañon of the Middle Fork of the King's River or Tehipitee Valley. At Little Boulder Creek is the Bear Skin Meadow, and just where the trail crosses the creek is a grove of *Sequoia gigantea*. (From Flooded Meadow to Bear Skin Meadow is about 9 or 10 miles.)

Now comes an ascent of 5 miles to the summit of the ridge, between Little and Big Boulder Creeks, during which many groves of sequoias are encountered. The summit of this ridge is the highest point on the trail—over 7000 feet—and just below the top, on the other side, is a good camping spot at a fine large meadow. The trail now descends to the banks of Big Boulder Creek. This large stream comes down a steep slope in a succession of cascades, but there is usually a tree felled across, and it can probably be forded with very little trouble in most seasons, if the attempt is made early in the morning. After crossing this stream, take the trail up the tremendous ascent on the other side. Arrived at the top, the trail bears off over thinly forested, undulating country to the Horse Corral Meadows, 11 miles from Little Boulder Creek. The Horse Corral is a very large meadow, and is, of course, a most beautiful camping spot. After leaving this place the trail trends a little to the north, but there are no more steep hills till the verge of the King's Cañon is reached. Just beyond the Summit Meadows, at Grand Lookout, the descent into the cañon

begins. The trail from here on is very rough and precipitous, descending 3000 feet in less than 3 miles. There are fine views all along here of the Grand Cañon and the high Sierras to the east, and of the great "Divide" to the north. Arrived at the bottom, you are in the gorge about 3 miles below the Grand Cañon. Follow up the trail a few hundred yards, to Fox's camp and meadow, just beyond which is a fine camping ground on the King's River. Fox leases the meadows from their owners, and makes a small charge for grazing stock. He also keeps on hand a small supply of provisions for the convenience of campers. (From Horse Corral Meadow to Fox's cabin is 6 miles.)

The King's River is a very rapid stream, and fully 200 feet wide in the early summer. Fording or swimming animals is quite a difficult operation when the water is high. Fox endeavors to fell a tree across at some point each year, in which case there is no great trouble in pulling animals through. The trail continues up the valley, on the south side of the river, for 3 miles to the meadow near the junction of the King's and Roaring Rivers. This latter, a stream



about the size of the Merced, enters the valley through an extremely narrow cañon from the south. A short distance above its junction with the King's is the ford. Animals will have no trouble in crossing here, though pedestrians

may have to fell a tree to get across. Where this river enters the valley there is a fine fall, about 50 or 75 feet high, but it can be viewed to advantage from the left or eastern bank of the river only. Both rivers abound in trout. After crossing Roaring River, the trail continues up the cañon, still on the south side of the main King's, to Big

Meadows, 3 miles above. Here there was an immense sugar-pine felled across the main river, and it has remained in position for several years. At any rate, the river must be crossed here, and, as the water is comparatively quiet, there may be no great difficulty in pulling animals through. Just above the log the river makes a bend to the south, and on this bend just across the log is an excellent place for a permanent camp. Big Meadows is on the opposite side of



Fig. 4.

the river, but there is also a small meadow on the same side as your camp just around the bend. The great cliff to the north of this camp is the face of North Dome, formerly

called Mt. Ingersoll. The high point on the south wall seen by looking from camp across the Big Meadow is the Grand Sentinel. The south wall can be best ascended by following up Avalanche Cañon, which breaks through the wall just where the log crosses the river. One may ascend the Grand Sentinel or Avalanche Peak by this cañon. Another way up the south wall is by the old trail in the gulch, just to the east of the Grand Sentinel, and this leads over toward Mt. Brewer. The north wall is best ascended by the Copper Creek trail, which follows up the left or western bank of the first large creek entering the river above camp. The distance from camp to the foot of the Copper Creek trail is about $1\frac{1}{2}$ miles. This trail runs across the "Divide" into Tchipitee Valley. Paradise Valley can be reached by following up the left bank of the river. About 3 miles above camp the cañon comes to an abrupt end, the great mass of Glacier Monument blocking it entirely. The main King's River comes down the rugged gorge from the north while Bubb's Creek enters from the southeast. At this point one must turn up the main stream, which can be

followed without difficulty about 5 miles further, to Paradise Valley. There are many splendid cascades in the river on the way up.

The main trail to Independence crosses the King's River again, just above its junction with Bubb's Creek, 3 miles above camp. There is a portion along the last bit of the King's River that is pretty rough and hard to follow, but it has probably been cleared out at present. In 1890 there was a log-jam across the river at the ford, so we had no trouble carrying our packs across. The river is broad and broken with islands. After crossing the river, the trail turns back along Bubb's Creek for a few hundred yards and



Fig. 5.

then zig-zags up the hill to the left. *Do not attempt to follow along the stream-bank*, but find your trail and climb up the mountain-side. After attaining a height of about 500 feet the trail bears off on a level up the cañon of Bubb's Creek, gradually

descending to the stream-bank again. There is no trouble in following it after this for the next 4 or 5 miles. Keep on the north bank. About 5 miles above the mouth of the cañon the *trail forks*—one branch keeping on up Bubb's Creek and the Independence trail turning to the left up a very steep hill. It follows up the left bank of the creek which drains Lake Charlotte (or Rhoda Lake), and which forms a waterfall of considerable size where it comes down over the side of the Bubb's Creek Cañon. The *other trail* crosses this creek on a sheep bridge, which will help to distinguish the place. The trail from here on for about a mile is the worst on the journey—running in the dry bed of a creek filled with loose boulders.

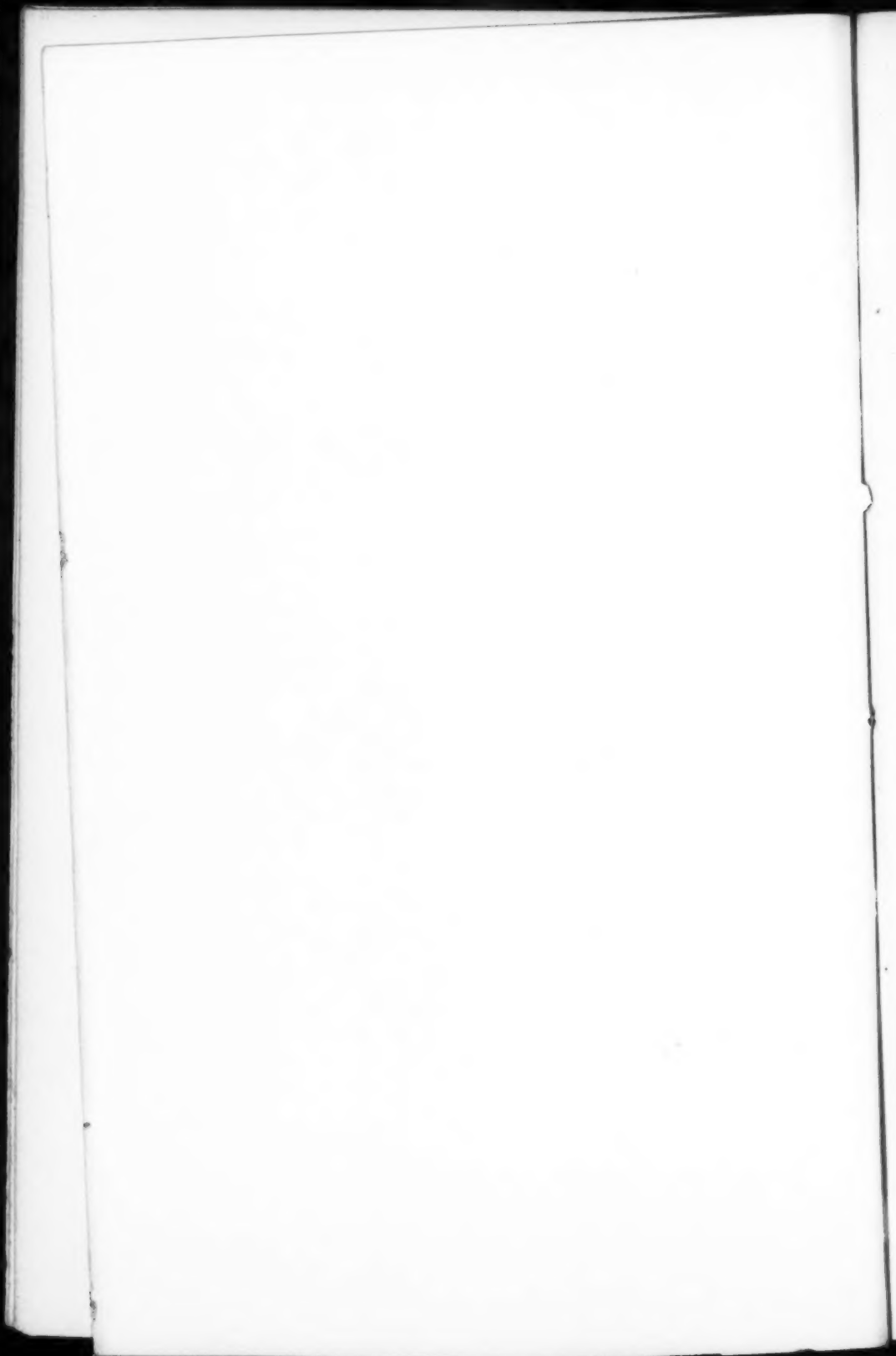
At the top of the steep ascent the trail follows along the stream again, through fine meadow land. The trail is very blind through here, but one need only follow along the left bank of the stream all the way to Lake Charlotte, which is some 9 miles above the upper end of the King's Cañon. This lake is a beautiful little sheet of water, a quarter of a mile long, set down amongst high, desolate mountains. It lacks trees and shade only to make it a fine camping spot. There are a few groves of Alpine pine (*Pinus flexilis*) on the margin, and also a narrow fringe of meadow about the lake. It abounds in fine large trout. Standing at the outlet, and looking toward the head of the lake, one notices a very fine peak standing up against the eastern sky. Our party called this University Peak, in honor of the institution at Berkeley. It is over 14,000 feet high, and on the main crest. The altitude of Lake Charlotte is about 10,700 feet.

The trail passes around the left side of Lake Charlotte, and crosses the ridge at its head, keeping quite a distance to the left of the incoming stream at first, but approaching it again further on. There are several small lakes upon this stream. After crossing the ridge before mentioned the trail descends into the basin at the head-waters of Bubb's Creek, and passes around the left side of Bullfrog Lake. (Elevation 10,800 feet.) The rock scenery from this point to the foot of the Kearsarge Pass is rarely equaled in grandeur in any part of the Sierra. Only a few stunted pines grow amongst the rocks, but meadows are abundant. The trail is well beaten up to the base of the Kearsarge Pass. (Elevation of base 11,600 feet.) There is a ridge of loose rock at this point, and the trail runs diagonally up it for about 450 feet of ascent to the summit of the range. (Elevation of the Kearsarge Pass 12,056 feet.) The view from the top, which extends over the roughest portion of the Sierras at the head-waters of the forks of the King's and Kern Rivers, is the most sublime which it is



VIEW NEAR KEARSARGE PASS.

From a photograph by J. N. Le Conte.



possible to obtain in any part of the range. The summit ridge is not over 10 or 12 feet wide, and is very much shattered.

The trail starts rapidly down on the other side, amongst the loose debris to the left, passing around the northern edge of a frozen lake known as the Devil's Pot-hole. Just beyond this lake is a great drop in the cañon bed, but the trail is tolerably good, and beyond this place there is no trouble whatever. There are six lakes upon the stream (Little Pine Creek), and the last, which is by far the largest, is called Onion Lake. All these lakes abound in trout. Just beyond the old Kearsarge Mill, the trail turns out of the cañon over the low ridge to the north, and descends into Owen's Valley by another cañon. The last portion is a wagon road, running directly east over the sage plain to Independence. The distance from Lake Charlotte to the Kearsarge Pass is about 3 miles, and from this point to Independence 15 miles.

The road to Lone Pine is a continuation of the main street. It runs due south and to the east of a low mass of hills (the Alabama Hills), which are about 13 miles distant, passing between these hills and the Owen's River. There are several farm houses on the road after leaving Independence, but none after coming within 6 miles of Lone Pine. After rounding the point of the Alabama Hills, the town of Lone Pine is still 4 miles distant. (From Independence to Lone Pine is 16 miles.) Continuing on through Lone Pine our road passes to the left of a little lake, or lagoon, of the river, and then forks. Take the branch to the right at this point, as well as at the next fork a short distance beyond. This road passes up through the Alabama Hills, and across the plain beyond to Jenkins' Ranch, running nearly west. The Hockett trail starts from this ranch, bearing southwest. The first water is $2\frac{1}{2}$ miles from Jenkins', where a fine stream crosses the

trail, and after this there is no more for 8 miles. After crossing this creek the trail runs diagonally up the hillside to the south, and then turns back into the mountains. The Hockett trail is well built, but the climb is a tiresome one, owing to the absence of water. The first water is at Little Cottonwood Creek; but there is no feed at this point. Follow the right hand branch of the trail which forks here, keeping up the stream on the right hand bank. Half a mile above are fine meadows and good camping grounds. It is 12 miles from Lone Pine to Little Cottonwood Creek. The trail runs up the creek, sometimes on one bank and sometimes on the other, and then turns to the left over a ridge to Big Cottonwood Creek. There are fine meadows and plenty of golden trout at Big Cottonwood, which is 17 miles from Lone Pine. The Hockett trail crosses Big Cottonwood and runs up the opposite hill, bearing a little to the left. *Do not follow up* the creek. The trail crosses a low ridge into another meadow—a very large and fine one—called Horseshoe Meadow. After crossing

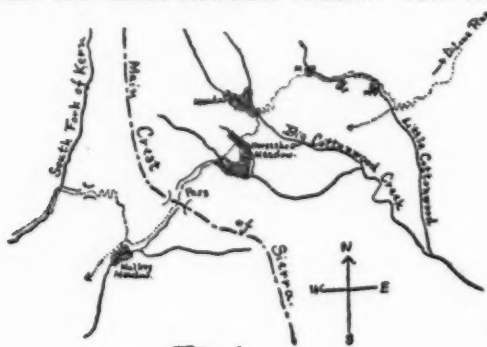


Fig. 6.

this portion of the meadow the trail passes over a low, wooded ridge, and down into another arm of the same meadow. It skirts around the right hand, or upper, edge of this, and then follows up a small stream coming in from

the west. After reaching the top of the ridge at the source of this, we cross the main crest of the Sierra at an elevation of about 11,000 feet. The trail is well blazed all along here. It then descends along a small creek to a large flat below, which is green in the middle and sandy about the edges. This is the Mulkey, or Mulchy Meadow. Cross a large sand bank, and then turn to the right, taking that fork of the trail which bears north, up the sandy plain. Continuing north the trail enters a dry valley, covered with sagebrush and scattered timber. Two miles above the Mulkey Meadow the trail turns to the left and crosses the ridge on that side, descending on the other side in a dry cañon to a large creek, the South Fork of the Kern River. Our route is first down the left bank for a short distance, and then crossing the stream, continues on the right side, the creek running in a deep gorge. Finally, the trail emerges on a sagebrush flat, still keeping near the South Fork till the "Tunnel Fork" is reached. At this point Whitney Creek and the South Fork approach within a few hundred feet of one another, and a tunnel has been cut, draining most of the water of the former into the latter. As the trail passes along the top of the low ridge over the tunnel, one may easily miss this place, which is a most important landmark. Here the Whitney trail branches from the Hockett trail and turns back up Whitney Creek. At the "forks" our party put a blaze on a tree on the north side of the trail, thus, Y.

From Big Cottonwood to Horseshoe Meadow is 1 mile, and from here on to the Mulkey Meadow is 3. From Mulkey Meadow to the South Fork of the Kern is $3\frac{1}{2}$ miles, and the trail follows this latter stream 4 miles to the "Tunnel Forks." Whitney Creek and the South Fork abound in golden trout.

Turn back toward the mountains again, taking the trail up Whitney Creek. At first the trail keeps well up on the

ridge, and then descends to the south bank of the creek. A mile and a half above it crosses the creek and keeps on the other bank all the way to Whitney Meadows. These meadows are at the base of Old Mt. Whitney, or Sheep Mountain. You follow along the left, or northern edge of the meadow, and watch carefully for a sheep corral. It is built substantially of logs, and is set a little back in the forest, so that it can easily escape detection. Just here is a small stream, upon the bank of which is a U. C. cut upon a tree. From here on for a distance of 2 or 3 miles there is a gap in the trail, so one must cut across country, following prominent landmarks. Cross the little creek and ascend along the ridge upon the other side, bearing north.



Fig. 7.

Then incline slightly to the right, getting finally into the cañon of another small creek flowing parallel to the first. At the head of this creek may be noticed a flat-topped mountain, which, in ordinary seasons, has a large patch of snow near the top. *Ascend to the top of this mountain* with your animals, by keeping to the left of the patch of snow. On the summit will be found quite an extensive area covered with

loose boulders. At the foot of the mountain on the other (northern) side will be seen an extensive meadow with sandy margins, and our route is down the rocky slope into this. Once at the bottom, make toward the point where the stream leaves the meadow, at the northwestern corner. After following this stream down for a few rods on the left bank you will strike the trail which leads all the way to the base of Mt. Whitney. Two hundred yards from the edge of the meadow the trail crosses the creek, and on the other side it is well-beaten into the sand. For $1\frac{1}{2}$ or 2 miles the trail follows near this creek on the east

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MT. WHITNEY, FROM THE WEST.

(Route up the Mountain.....)

From a photograph by J. N. Le Conte.

bank, and then it bears off more to the right, crosses a large lateral moraine, and descends into a deep cañon to the banks of Rock Creek. Follow down this large stream for $1\frac{1}{2}$ miles, till you come to a sheep corral. A hundred yards or so below this the trail crosses the creek on a sheep ridge, and on the other side it runs directly up the mountain northward. The starting point near the creek is marked by a blaze on a tree, thus: \triangle P I E B. The trail zigzags up the mountain toward a saddle just to the right of a large peak, crossing on the way up another fine creek. Cross the pass at the saddle, and then descend to a sand flat on the other side. Cross this and follow the trail through forests of *Pinus flexilis* along the hillside for 3 or 4 miles, and then down a very steep, rocky slope, into the cañon of the creek which flows from the base of Mt. Whitney. At the foot of the trail is a fine, large meadow. Two creeks flow into it, one coming in from straight in front, and the other (by far the larger) entering from the left. Where this latter meets the meadow is a series of narrow, vertical blazes on a tamarack.

From here to the base of Mt. Whitney there is only the remnant of a trail, but no difficulty will be encountered in following up the left (northern) bank of the large creek. A quarter of a mile above is another very fine meadow. About a half mile from the base of Mt. Whitney a beautiful lake will be passed, which is just at the timber line. (11,000 feet.)* At the very base of the mountain is another lake and small meadow, where one may camp, but there is very little wood about. At this lake the creek forks. *If you keep up the southern branch* for a quarter of a mile you will come to the site of the old Langley camp. From here to the summit may be found evidences of an old trail. Keep well to the right, ascending the slope to the south of the main peak.

* See accompanying photograph.

Distances are as follows: Tunnel Forks to Whitney Meadows, 5 miles; Whitney Meadows to Rock Creek, 8 miles; Rock Creek to large creek flowing from base of Mt. Whitney, 9 miles. Follow this latter up for 3 miles to the foot of the mountain. From here to the summit is 3 miles.

During the whole trip from Lone Pine the true summit of Mt. Whitney cannot be seen anywhere along the trail till the descent into the cañon of the last creek is begun. On the way up this creek, however, the mountain is constantly in view. From Independence to Mt. Whitney is about 70 miles by trail.



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